Status of the NuMI Project

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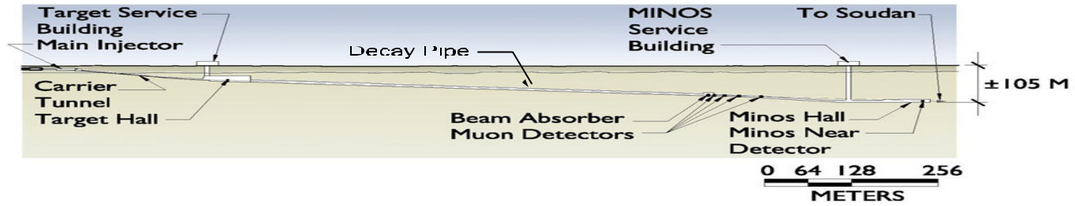
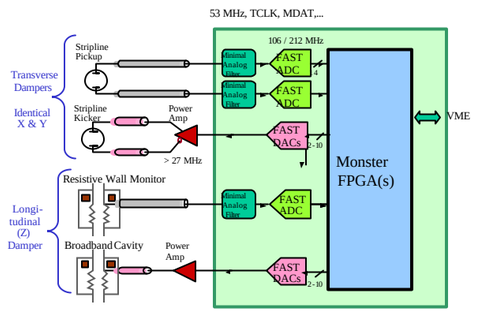
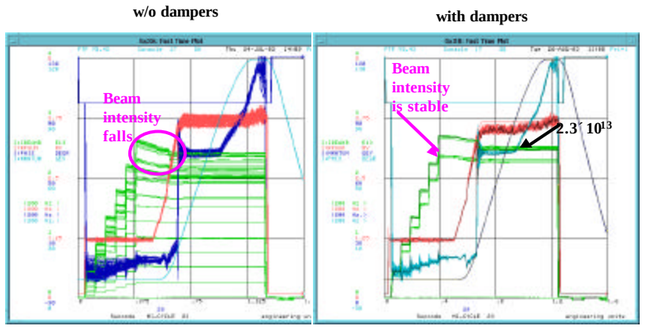


Target proton intensity for the beginning of the run is 2.5×10^{13} protons every 2.0 sec

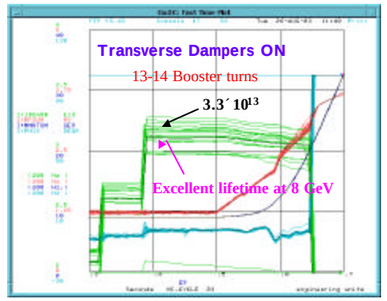
All-Coordinate Digital Damper



Multi-batch w/o and with transverse dampers



Higher intensity with 6 batches



Good progress in the NuMI primary beam line

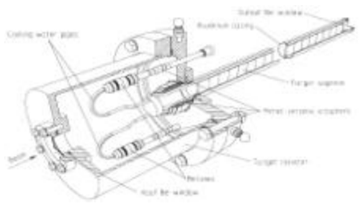
NuMI magnet between Main Injector and Recycler

Lammberson magnet in MI-60

NuMI magnet string before last magnet target

Major magnets between accelerator and target hall are in place

Target

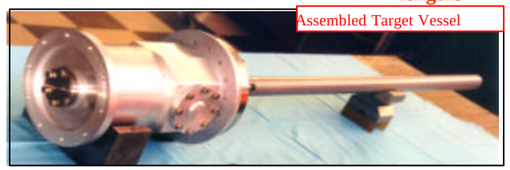


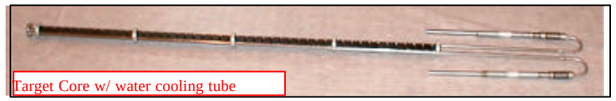
Built by IHEP Protvino

0.4 MW beam power strikes graphite target

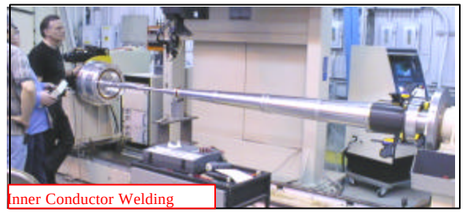
Encased in a vacuum / helium can with beryllium windows

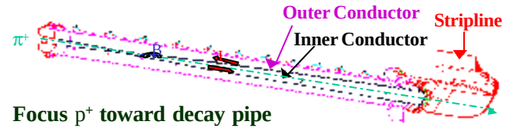
2 Interaction lengths


Assembled Target Vessel


Target Core w/ water cooling tube

Magnetic Focusing Horns

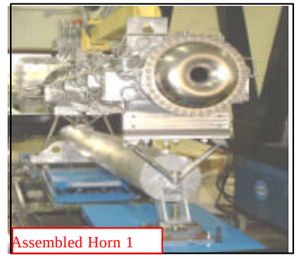

Inner Conductor Welding



Focus p^+ toward decay pipe

- **205 kA pulse**
- **3.0 Tesla peak field**

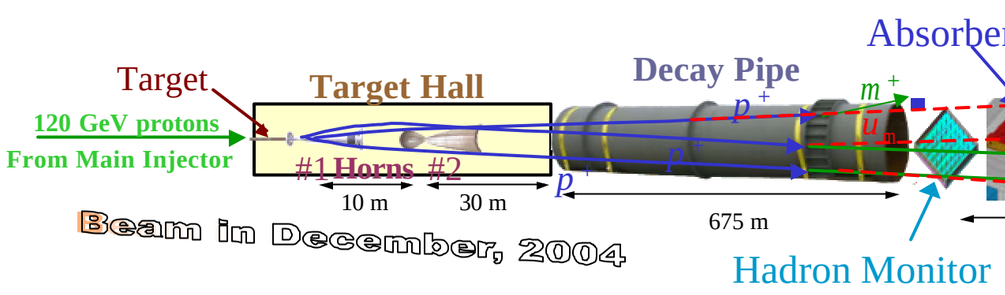
Parabolically shaped inner conductors allow the momentum selection of pions


Assembled Horn 1


Target in L.E. location in Horn 1

Horns 1 & 2 are completed and ready to be installed


Assembled Horn 2



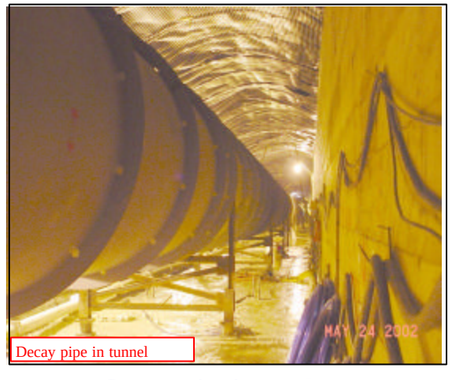
Near Detector
1.03 km away from target
282 planes complete and ready for final assembly

Far Detector
735 km away from target
486 planes & 5.4 kilotons
taking atmospheric u data

Target Hall & Decay Pipe


Shielding blocks in Target Hall

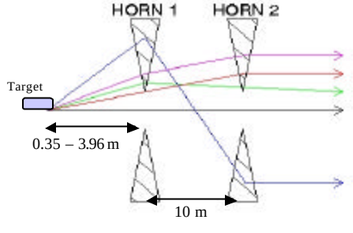
1/2 of the 8 kilotons of shielding is installed (Feb, 2004)

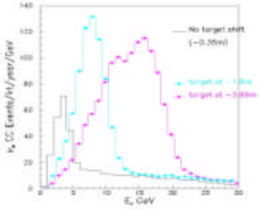


Decay pipe in tunnel

Construction is complete (Fall, 2002)

Variable Energy Beam





- **Focus higher energy pions at smaller angles**
- **Pull target back up to 3.96 m along the beam axis**
- **Additional optimization can be achieved by moving horn 2**